

## 4-STEP LESSON PLAN

UNIT: Candy

LESSON/PROJECT: Toffee and brittle, caramelization of sugars

OBJECTIVE: To help the student understand the scientific processes that sugar undergoes as it transforms into candies, toffees and brittles.

Ex. Soft crack, hard crack stage

ES's TAUGHT:

- 1.1 Demonstrate industry-specific competencies
- 1.3 Utilize current and emerging technologies
- 1.4 Follow health and safety practices and regulations
- 2.2 Practice self management, teamwork, and leadership skills
- 2.4 Think creatively

MATERIALS NEEDED:

Heavy bottomed saucepan  
Candy thermometer  
Wooden spoon  
Pastry brush  
Silicone mat or buttered parchment paper

- I. FOCUS: English toffee
- II. MOTIVATION: Ever been to a high end candy shop while they were making the toffees and brittles? Ever watched the show unwrapped-candy editions? Ever wonder about how simple white sugar can transform itself into so many ooey-goey treats?
- III. PRESENTATION: Demonstration of English toffee caring to discuss "brushing down the sides"

IV. APPLICATION: One recipe of English toffee, peanut brittle, and lollypops

IV. EVALUATION: check throughout the process, check to make sure that the sugars do not crystallize and taste the final product

# Candy

## History:

The word confection comes from the Latin phrase “to make with much skill”. The first candies were sweetmeats, fruits and nuts bound with flour paste and sweetened. There is early evidence dating back to Egyptian times of the candy making process based on drawings inside the tombs.

The use of sugar to sweeten is said to have spread across the Middle East rapidly after being introduced by India as early as 3000 BC. When sugar finally reached Europe the price was sky high. It was measured by the ounce and only the very wealthy could afford it.

During the renaissance sugar became more available as voyages to the West Indies and the new world led to the discovery of more sugar cane. And finally when sugar refining became more commercial candy began to appear in bewildering variety, and books began to be written about the candy making process. Michael de Nostredome was among the most famous French Confectioners; making all sorts of boiled sweets, bon bons and pralines (roasted almonds coated with sugar)

In America candy making dates back to the 1700's in New Amsterdam to Dutch bakers making sugar wafers, marzipans macaroons and sugar plums. Rock candy and candy apples did not come along until the 18<sup>th</sup> century along with licorice ropes, all day suckers, conversation hearts and Boston baked beans.

Legend has it that peanut brittle and fudge came along by accident when a housewife accidentally added baking soda instead

of cream of tartar to some taffy, and fudge was someone's ruined caramel.

Around WW1 was the greatest candy making revolution-The Candy Bar. Solid chocolate had been around for awhile, especially in Switzerland but in the 20<sup>th</sup> century companies began mass producing chocolate bars to meet wartime demand.

1960 1.4 billion dollars worth of candy produced per year

In the US, candy industry ranks 9<sup>th</sup> in the food industry

# Candy Making

Thread	220-234	fruit syrup
Soft ball	234-240	Fondant and fudge
Firm ball	244-248	caramel candy
Hard ball	250-266	Marshmallows
Soft crack	270-290	Taffy
Hard crack	300-310	Brittles, toffee, hard candies
Caramel	320-350	

Preparation of candy is in part controlling the sucrose

One way is to combine it with water and cook it to a solid state

To prevent crystallization three things must be considered

- Everything must be kept clean as crystals will form on any solid particle in the solution
- Solution should be kept at a rapid boil to prevent the molecules from locking together
- Solution should be cooled quickly and not stirred

Sometimes other ingredients are added to the sugar and water to aid in preventing crystallization, like honey or corn syrup (glucose or fructose)

Cream, butter, egg white, gelatin, or chocolate may be added as well to enhance flavor while also helping to prevent crystallization

There are always exceptions to every rule for example in fudge and fondant we actually want crystallization, but we stir to control them and keep them small.

Sugar solutions absorb moisture from the air therefore candies are best prepared in a clean, cool, dry environment. To avoid condensation avoid humid days and refrigeration.

## **Types of candies**

Candies are divided into two groups

Non- crystalline

Hard candies  
Caramels  
Taffy  
Toffee  
Brittles  
Licorice  
Jellies and  
Gums

Non- crystalline

Hard candies  
Caramels  
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### **Steps to prepare a simple Sugar solution**

- 1. All ingredients and tools must be clean**
- 2. Heavy bottomed saucepan, preferably copper should be used and it should be deep enough to contain any overflow when adding other ingredients to the hot solution**
- 3. Pour sugar into water (not the other way around and stir to be sure all the sugar is moistened**
- 4. Place over med-hi and bring to a boil, then add the glucose or honey (if using) wash down the sides with CLEAN cool water. When the solution boils again raise the heat to hi, place the thermometer in and wash down the sides as necessary.**
- 5. Add additional ingredients at the proper temperatures**
- 6. When solution has reached the desired temperature leave the thermometer in place and submerge the pan in ice water to stop the cooking (sugar can increase 10 degrees or more after removing from heat**

# Almond Roca

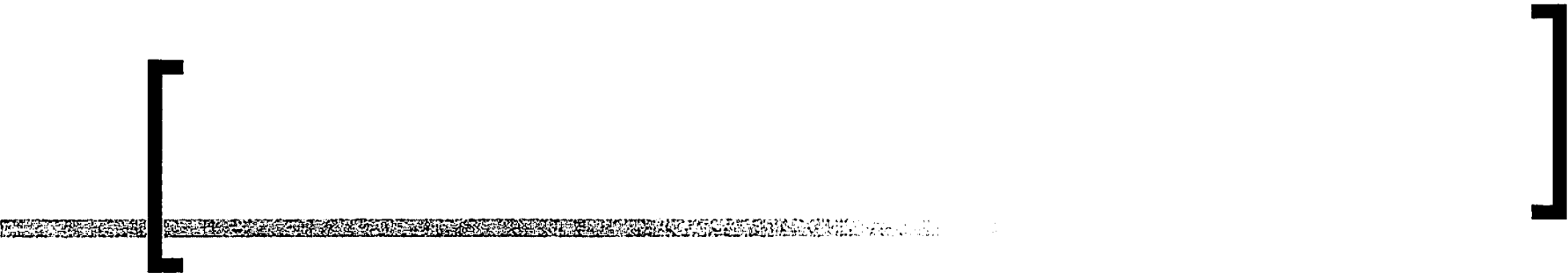
- 1 cup sugar
- $\frac{1}{2}$  t salt
- $\frac{1}{4}$  cup water
- $\frac{1}{2}$  cup butter
- $\frac{1}{2}$  cup almonds
- 8 ounces chocolate
- 1 T chopped almonds (garnish)



- In a saucepan boil the sugar, salt, water, butter, and almonds on medium-high.
- Pour on to a greased sheet, and let sit for 10 minutes.
- Sprinkle with the chocolate
- When chocolate is softened, sprinkle with chopped almonds.

# Peanut Brittle

- 1 cup sugar
- 1 cup corn syrup
- 1 T water
- 2 cups raw peanuts
- 1 t baking soda

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- In a saucepan add the sugar, water, and corn syrup.
  - Cook, stirring constantly, until the sugar dissolves
  - Don't stir till it reaches a soft crack, around 280 degrees.
  - Stir in the peanuts, and then stir occasionally to a hard crack, around 300 degrees.
  - Remove from heat and then stir in the baking soda.
  - Pour into a silpat or buttered pan.

# Rocky Road Fudge

- 20 large marshmallows, divided
- 2 cups sugar
- $\frac{3}{4}$  cup evaporated milk
- 6 ounces chocolate chips
- $\frac{1}{4}$  cups butter
- $\frac{3}{4}$  cups nuts
- $\frac{1}{2}$  t vanilla

- Butter a 8" square pan
- Cut the marshmallows in half and then ¼'s, then freeze for 1 hour.
- Cut the remaining half.
- In a saucepan, on medium, cook the sugar and milk
- Cook to 234 degrees and remove from heat, fold in the chocolate chips.
- Add the butter and the marshmallow in half intervals, and stir until melted. Should be slightly thick.
- Fold in the nuts and the frozen marshmallows, and pour into prepared pan. Let it cool for 30 minutes.

# Caramels

- 1 cup sugar
- ½ cup brown sugar
- ½ cup corn syrup
- ½ cup half and half
- ½ cup milk
- ½ cup butter
- 2 t vanilla

- Butter an 8” square pan
- Add everything else to a saucepan and bring to a boil on medium heat
- When it boils reduce to medium-low
- Cook the mixture to a firm-ball stage (Approximately around 244-248 degrees)
- Remove from heat and then stir in the vanilla.
- Put into the pan, cool, cut, and then wrap

# Chocolate Caramel Apples

- ½ C. sugar
- ½ C. corn syrup
- ½ C. cream
- 1 ½ oz. chopped chocolate



## Method

- Cook sugar and corn syrup until sugar dissolves and boils
- Without stirring continue boiling 12 mins (dark golden brown)
- Pour in cream and stir smooth, remove from heat and stir in chocolate